COTTON REGION REPORTS.

In the following table are given the means of the maximum and minimum temperatures and the average rainfall for the cotton districts during the month of September. For the purpose of comparison, the averages for these districts during the four preceding years are also given. The rainfall, as compared with the averages of four years, is largely deficient in the states of North Carolina, South Carolina, Georgia, Florida, and Alabama; the deficiencies are especially large in the districts of Montgomery, Atlanta, Savannah, and Charleston, producing in those districts a drought which was injurious to some crops but rather favorable for gathering the rapidly opening cotton. The monthly rainfall of the districts of Little Rock and Galveston was more than double the usual amount. The means of the maximum and minimum temperatures are above the average in nearly all districts:

Temperature and rainfall data for the cotton districts, September.

Districts.	Rainfall.			Temperature.							
				Maximum.			Minimum.			Extremes for Sept., 1886.	
	Average for September of four preceding years.	Average for September, 1886.	Departures.	Mean for Sept. of four preceding years.	Mean for Sept., 1886.	Departures.	Mean for Sept. of four preceding years.	Mean for Sept., 1886.	Departures.	Max.	Min.
	Inch.	Inch.	Inch.	°	°	°	°	°	°	°	°
New Orleans	2.91	4.14	+ 1.23	87.7	86.8	— 0.9	66.3	68.8	+ 2.5	97	43
Savannah	4.22	1.92	— 2.30	86.3	88.0	+ 1.7	67.1	68.9	+ 1.8	99	43
Charleston	4.60	2.02	— 2.58	84.4	85.7	+ 1.3	64.5	65.8	+ 1.3	96	54
Atlanta	3.02	1.00	— 2.02	83.5	85.4	+ 1.9	62.7	65.2	+ 2.5	95	48
Wilmington	4.79	2.42	— 2.37	82.1	84.4	+ 2.3	61.6	64.8	+ 3.2	97	50
Memphis	2.26	3.56	+ 1.30	84.8	84.5	— 0.3	60.7	63.2	+ 2.5	95	34
Galveston	3.60	6.75	+ 3.15	87.7	88.2	+ 0.5	65.6	69.5	+ 3.9	100	36
Vicksburg	3.46	4.15	+ 0.69	87.3	88.1	+ 0.8	64.1	69.7	+ 5.6	97	48
Montgomery	2.07	0.56	— 1.51	86.1	87.5	+ 1.4	63.4	66.7	+ 3.3	95	38
Augusta	3.09	1.94	— 1.15	84.8	85.8	+ 1.0	65.2	65.8	+ 0.6	96	53
Little Rock	1.95	5.41	+ 3.46	86.1	86.7	+ 0.6	59.4	64.1	+ 4.7	100	40
Mobile	1.99	1.81	— 0.18	88.4	87.5	— 0.9	65.0	65.7	+ 0.7	99	42

RAINFALL IN THE TEXAS COTTON REGION.

The following, from the special annual edition of the "Galveston News," of September 1, 1886, containing a tabulated statement and remarks on the rainfall in the Texas Cotton region, from April 1st to October 31st, for the years 1882, 1883, 1884, and 1885, and from April 1st to July 31, 1886, was prepared by Mr. E. O'C. MacInerney, Collector of Customs at Galveston, Texas, from data furnished by the Signal Service:

Station.	1882.	1883.	1884.	1885.	1886.
Austin	13.90	13.38	9.27	10.98	6.41
Beaumont	1.51	8.08	14.81	.....	.....
Belton	6.72	10.54	18.76	6.26	11.85
Brenham	.....	.....	.....	3.69	7.99
Columbia	.....	.....	7.83	20.41	5.13
Corsicana	18.18	6.57	20.34	17.06	8.79
Cuero	7.22	12.03	13.29	17.86	6.30
Dallas	23.06	16.56	22.44	22.25	3.31
Galveston	36.40	20.78	38.45	45.96	9.57
Hearne	10.85	12.05	18.40	22.75	7.84
Hempstead	13.04	12.91	21.86	.....	.....
Houston	18.75	28.94	43.81	18.48	10.66
Huntsville	17.86	15.04	19.66	18.86	9.22
Longview	2.57	1.87	12.98	32.73	9.74
Luling	11.14	13.45	17.20	0.15	2.03
Orange	.....	1.14	7.84	8.38	0.39
Palestine	35.56	20.75	33.37	21.26	7.50
San Antonio	26.24	8.10	11.80	23.57	9.12
Sour Lake	29.72	21.09	28.95	22.63	12.17
Tyler	22.46	16.70	32.27	7.97	4.92
Waco	18.40	8.68	17.89	25.21	4.20
Weatherford	14.08	.....	41.89	19.88	2.01
Weimer	10.50	11.57	23.95	21.61	7.08
Annual totals	408.16	260.13	477.06	387.95	146.26

The tables are instructive to the extent of showing that in the year 1883, when the rainfall was below the average, the cotton crop for that season was also below the average.

In 1884, while the total amount of rainfall was above the average, its distribution was so uneven as to cause a shortage as marked as if the rainfall had not been up to the average. Of the 477.06 inches reported for the seven months from April 1st to October 31, 1884, 374.25 inches fell during the three months of April, May, and September, leaving but 102.81 inches for the months of June, July, August, and October. Owing to the great evaporating power of the sun in the months of June, July, and August, they are the months in which the rainfall is the most needed. Any lack of a sufficiency of rain during these three months must necessarily be followed by a proportionate impoverishment of crops, particularly of the cotton crop. Should this assumption be correct, it would be consistent to assume that the cotton crop of Texas for the current year will fall below the expectations of the early spring, but perhaps not so much so as might be expected in comparison with the small rainfall from April 1st to July 31st, viz., April 53.93, May 4.85, June 48.87, and July 38.61 inches, on account of the fact that in June and July it was so much greater than in the two months of April and May. * * * *

The Chief Signal Officer recognizes that the reports are not all that they should be, but they are the best that the means at hand can secure. A larger appropriation for this branch of the service has been requested, and those interested in it should see that this feature of the Signal Service work is properly supported.

NAVIGATION.

STAGE OF WATER IN RIVERS.

The Ohio River was very low throughout the month; at Louisville, Kentucky, navigation was partially suspended. In the following table are shown the danger-points at the various river stations; the highest and lowest depths for September, 1886, with the dates of occurrence, and the monthly ranges:

Heights of rivers above low-water mark, September, 1886.

[*Expressed in feet and tenths.*]

Stations.	Danger-point on gauge.	Highest water.		Lowest water.		Monthly range.
		Date.	Height.	Date.	Height.	
Red River:						
Shreveport, Louisiana	29.9	30	1.4	12	—1.0	2.4
Arkansas River:						
Fort Smith, Arkansas	22.0	15	8.7	1, 2	2.5	6.2
Little Rock, Arkansas	23.0	19	6.5	5	2.3	4.2
Missouri River:						
Yankton, Dakota	24.0	1, 2	17.8	30	16.6	1.2
Omaha, Nebraska	18.0	1 to 4	8.0	25, 30	7.0	1.0
Leavenworth, Kansas	20.0	1, 5	6.8	23 to 28	5.6	1.2
Mississippi River:						
Saint Paul, Minnesota	14.5	9	2.8	2	2.0	0.8
La Crosse, Wisconsin	24.0	24, 25	6.2	15	3.3	2.9
Dubuque, Iowa	16.0	29, 30	5.8	18	3.1	2.7
Davenport, Iowa	15.0	29, 30	3.8	15 to 18, 22, 23	2.0	1.8
Keokuk, Iowa	14.0	30	3.4	1	1.7	1.7
Saint Louis, Missouri	32.0	29, 30	7.4	2, 3	5.9	1.5
Cairo, Illinois	40.0	1	10.2	17	5.3	4.9
Memphis, Tennessee	34.0	1, 2	8.4	18, 19, 29, 30	5.4	3.0
Vicksburg, Mississippi	41.0	1, 2	8.3	23, 30	4.5	3.8
New Orleans, Louisiana	13.0	9	4.2	16, 17, 18, 29	2.7	1.5
Ohio River:						
Pittsburg, Pennsylvania	22.0	30	6.9	1	0.8	6.1
Cincinnati, Ohio	50.0	1	7.4	18, 19	4.1	3.3
Louisville, Kentucky	25.0	2	5.2	16	2.8	2.4
Cumberland River:						
Nashville, Tennessee	40.0	20	10.0	14	2.2	7.8
Tennessee River:						
Chattanooga, Tennessee	33.0	1	3.4	27 to 30	2.0	1.4
Monongahela River:						
Pittsburg, Pennsylvania	29.0	30	6.9	1	0.8	6.1
Savannah River:						
Augusta, Georgia	32.0	16	11.0	30	5.9	5.1
Mobile River:						
Mobile, Alabama	.....	25	18.8	5, 19	16.7	2.1
Sacramento River:						
Red Bluff, California	.....	.....	.....	.....	.....	.....
Sacramento, California	.....	1, 2	8.2	15 to 30	7.5	0.7
Willamette River:						
Portland, Oregon	.....	1, 2	3.9	22	1.1	2.8
Colorado River:						
Yuma, Arizona	.....	6	18.7	4, 29, 30	15.5	3.2

FLOODS.

Sioux City, Iowa: heavy rain fell on the afternoon of the 6th, doing much damage. The sewers were inadequate to carry off the volume of water, in consequence of which the streets were flooded, and in some parts of the town houses damaged.

Raleigh, North Carolina: on the 9th heavy rain fell throughout eastern North Carolina, flooding streams and overflowing the lowlands. A large mill dam on Walnut Creek was broken by the pressure of the water and several flouring mills were carried away and bridges wrecked.

Santa, Fé, New Mexico: during the 11th, 12th, and 13th heavy rains fell in the region between Socorro and Albuquerque, New Mexico, washing away several miles of the Atchison, Topeka, and Santa Fé Railroad bed. A bridge over the Salida River was badly damaged by the freshet. About twenty-five